## AMENDMENTS TO THE DRAWINGS

Please substitute the attached drawings, 1 page, Fig. 4, for the drawing presently on file. In Fig. 4, the reference numeral for the box at the bottom left is changed from "3" to --6--.

Attachment: The replacement sheet for Fig. 4 is at the back of this paper.

## REMARKS

In view of the foregoing amendments, Applicant believes the pending application is in condition for allowance.

The specification is amended to correct a typographical error. No new matter is added.

A replacement sheet of Fig. 4 is submitted herewith.

Claims 1-33 are in the application.

All claims are amended to conform to United States' practice, for example, by removing parenthetical references. Claims 1, 3, and 22 are amended to correct grammatical errors. No new matter is added.

## I. Claim Rejection - 35 USC §102

The rejection of claims 1, 3-6, 14-17, 22, and 33 under 35 USC §102(b) as being anticipated by Chang et al., (US 6,313,790) is traversed.

Applicants disclose the structure of three fixed bases where at least one fixed base has a transmitter, a receiver and a clock. When more that one base has a clock, the clocks are synchronized with each other. The transmitter emits pulses in a determined frequency, at a predetermined reference instant and containing information of the instant of emission. Each pulse from each fixed base is transmitted to all the fixed bases through a communication device located in the space platform.

Applicants recite, in claim 1, the structure of:

> A geographic and space positioning system … [of] …a first, a second, and a third base … which are fixed … and each having a previously known location;

> a space platform ...;
>
> a transmitter ... operatively associated with each ... of the ... fixed bases ... and the space platform in order to emit pulses in a determined frequency, each pulse in a predetermined reference instant;
>
> a receiver operatively associated with each fixed base and with the transmitter, in order to receive said pulses in a trajectory covering the distance between the space platform and the fixed base associated with the receiver; and
>
> a control unit which is operatively connected to both the transmitter and the receiver, in order to calculate, for each pulse emission instant, the lateral edges of a tetrahedron, whose vertices are defined by the three fixed bases and by the space platform, based upon the determination of the propagation time of each pulse, in said trajectory, between the space platform and each fixed base in order to allow determining a respective extension of the trajectory of the space platform...

In Chang, the base stations are movable, they are not fixed. See column 3, lines 14-18 where Chang states that the secondary station may be any device that includes a transceiver such as automobiles mobile telephones, aircraft or the like as long as they are stationary during operation. Thus, in Chang, the stations are movable and have a location which is known, the stations are not fixed. The Examiner refers to column 12, lines 21-23 of Chang as saying that the bases are fixed in relation to the earth. What Chang discloses is that for nodes fixed to the surface of the Earth, W is identical to the Earth's angular velocity. Chang only discloses the vector angular velocity W. At the beginning of the Patent, Chang clearly and positively states that the nodes are movable, they are not fixed. Continuing, in Chang the primary ranging node transmits a signal which is reflected off the satellite back to the primary ranging node and to the movable base stations. The base stations, upon receiving the reflected signal, each simultaneously sends a signal back to the satellite where they are all reflected down to the primary ranging node. Applicants' structure is different. With the Applicants' device, one of the base stations sends a pulse up to the satellite and, at the same time,

this pulse is transmitted to each of the other base stations. The satellite then sends that pulse back down to each of the base stations and the control unit in each base station calculates the lateral edges of a tetrahedron. Immediately thereafter, the second and then the third base stations each send a pulse up to the satellite and the process is repeated. This feature is positively recited in claim 1 in the last paragraph.

Clearly, Applicants disclose a device which operates differently than the device of Chang with structure which is positively recited in claim 1 which is not disclosed or suggested by Chang. Therefore, it is understood that claim 1 avoids Chang and is in condition for allowance. Claims 3-6, 14-17 depend from claim 1 and, therefore, are also in condition for allowance. For the reasons noted above, claim 22 and claim 33 which depends from claim 22 recite limiting features which avoid the Cheng reference.

## II. Claim Rejection - 35 USC §102

The rejection of claims 1-2, 4-5, 7-8, 14-18, 21-23, 28, and 30-31 under 35 USC §102(b) as being anticipated by Knight et al., (US 5,570,096) is traversed.

Applicant's invention is directed toward accurately identifying the position of a moving satellite as it moves across the sky on its assigned orbit. The satellite that applicant's invention tracks is not a stationary satellite in the sky. It is a satellite which is used to scan various surfaces areas of the earth as it goes around and around. See the PreGrant Publication, paragraph [0013] where it identifies the space platform as "... visible from the fixed based and which moves to successive positions, as a function of time, according to a trajectory that is inclined in relation to the rotation axis of the earth..." Clearly, the satellite that Applicants track is in motion relative to the surface of the earth. In Knight, the satellite is stationary, it is in a fixed position relative to the surface of the earth. See column 1, lines 43-50, where Knight states that " Usually, these satellites are placed in geostationary orbits; that is , their orbits are chosen so they have a nearly constant apparent position relative to a user on Earth." (underscoring added for emphasis).

Thus, Knight's satellite does not move to successive positions, as a function of time as is recited in claim 1. Additionally, during tracking, the transmitter transmits a tracking signal which is received by the satellite and retransmitted back down to the receiver where the time delay and Doppler shift of the tracking signal is determined. See column 3, lines 33-36. Thus, by stating that a Doppler shift is obtained, it is Applicants' understanding that Knight is transmitting a signal of some duration. He is not transmitting only a pulse. Furthermore, Knight does not disclose or suggest the structure of a control unit as is positively recited in the last paragraph of claim 1.

The solutions by Knight and Chang are addressed to satellite position determination, using the principle of range measurement combined to range rate determination, the latter usually inferred from the carrier Doppler frequency drift. This is clarified in the respective texts of the two patents. In Knight and Chang, for determining the position and speed of the satellite, it is necessary to know the position variation and the time variation, which is obtained with the Doppler effect. The use of this principle is known since the very beginning of space exploration. The final satellite position determination requires a certain time interval to define the Doppler shifts association to the different range measurements - which cannot be obtained with a single measurement, at a given instant. The differences presented by Knight and Chang refer to the number of ground bases, their physical arrangements and differences in the processes of range and combined range rate measurements.

The present solution determines the repeater position on board a satellite (or in any other elevated platform, moving or fixed, visible by the reference bases) in a single instant, univocally, with the transmission of just one time signal from one of the bases, retransmitted by the repeater, received and compared at the three reference bases. The determination is immediate, does not require additional range measurements, and does not require a measurement of range rates. Clearly, the principles of operation of Applicants invention and that of Knight and Chang are entirely different and, therefore, cannot be compared. Knight and Chang are based on combined range and range rate measurements. Applicants invention is base on a single "snapshot" of temporal interaction.

Clearly, for the reasons noted above, claim 1 avoids the Knight reference and is in condition for allowance. Claims 2, 4-5, 7-8, 14-18, and 21 depend from claim 1 and are also considered to be in condition for allowance. For the reasons noted above, claim 22 recites limiting features similar to those of claim 1 which avoid the Knight reference. Claims 23, 28, and 30-31 depend from claim 22 and, therefore, are also in condition for allowance.

## III. Allowable Subject Matter

The allowance of claims 9-13, 19-20, 24-27 and 32 if amended to overcome the rejections under 35 USC § 112 as set forth in the Office Action, and if rewritten in independent form including all of the limitations of the base claim and any intervening claims is noted with appreciation.

## CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

The Examiner is respectfully requested to contact the undersigned at the telephone number indicated below if the Examiner believes any issue can be resolved through either a Supplemental Response or an Examiner's Amendment. In view or the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

By 

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